What is claimed is:

1. A timeslot assignment method for a communication system in which a plurality of end-user systems are connected to a timeslot assignment unit via a common transmission medium, each of said end-user systems comprising a buffer for storing packets of either variable or constant length and forwarding packets from said buffer on assigned timeslots, the method comprising the steps of:

a) determining a first count number of said packets in the buffer of each of said end-user systems;

b) determining a second, total count number of timeslots previously assigned to each end-user system during a delay time period of said timeslot assignment unit;

c) using said first and second count numbers for determining a third count number of packets in said buffer to which timeslots are still not assigned; and

d) assigning timeslots to packets of each end-user system based on said third count number.

2. A timeslot assignment method as claimed in claim 1, wherein said third count number equals a difference between said first and second count numbers.

3. A timeslot assignment method as claimed in claim 1, wherein the step (d) assigns said timeslots on a round-robin basis.

4. A timeslot assignment method as claimed in claim 1, wherein the step (d) assigns said timeslots in proportion to said third count number.

5. A timeslot assignment method as claimed in claim 1, wherein the step (d) comprises the steps of:

d_1) arranging the third count numbers of said end-user systems in descending order of rank;

d_2) setting integer N to one;

d_3) detecting a difference between the third count number arranged in a rank represented by the integer N and the third count number arranged in a rank represented by integer (N + 1);

d_4) assigning timeslots corresponding in number to said difference to packets of N end-user systems whose third count numbers are arranged in said descending order; and

d_5) incrementing the integer N by one and repeating the steps (d_3) and (d_4).

6. A timeslot assignment method as claimed in claim 1, wherein said packets are ATM cells.

7. A communication system comprising:

a plurality of end-user systems; and

a timeslot assignment unit connected via a common transmission medium to said end-user systems,

each of said end-user systems comprising:

a buffer for storing packets of either variable or constant length;

a queue length detector for detecting a queue length indicating a count number of said packets in the buffer; and

a controller for forwarding packets from said buffer on timeslots assigned by said timeslot assignment unit and transmitting a signal to said timeslot assignment unit for indicating the detected queue length,

said timeslot assignment unit comprising:

a timeslot count table having a plurality of entries corresponding to said end-user systems, each of the entries having a length corresponding to a delay time period of said timeslot assignment unit for storing a plurality of count numbers of assigned timeslots; and

a controller for (a) determining a total value of count numbers stored in each entry of said timeslot count table, (b) receiving the queue length indicating signal from each of said end-user systems, (c) using said total count number and the received queue length for determining a virtual queue length of each end-user system indicating a count number of packets in said buffer to which timeslots are still not assigned, (d) assigning timeslots to each end-user system based on said virtual queue length, and (e) storing a count number of the assigned timeslots in an entry of said timeslot count table corresponding to said each end-user system.

8. A communication system as claimed in claim 7, wherein said virtual queue length equals a difference between said total count number and the received queue length.

9. A communication system as claimed in claim 7, wherein the timeslot assignment unit assigns said timeslots on a round-robin basis.

10. A communication system as claimed in claim 7, wherein the timeslot assignment unit assigns said timeslots in proportion to said virtual queue length.

11. A communication system as claimed in claim 7, wherein the timeslot assignment unit performs the functions of:

arranging the third count numbers of said end-user systems in descending order of rank, setting integer N to one;

detecting a difference between the third count number arranged in a rank represented by the integer N and the third count number arranged in a rank represented by integer (N + 1);

assigning timeslots corresponding in number to said difference to packets of N end-user systems whose third count numbers are arranged in said descending order; and

incrementing the integer N by one and repeating the functions of detecting said difference and assigning said timeslots.

12. A communication system as claimed in claim 7, wherein said packets are ATM cells.

13. A communication system comprising:

a plurality of end-user systems; and

a timeslot assignment unit connected via a common transmission medium to said end-user systems,

each of said end-user systems comprising:

a buffer for storing packets of either variable or constant length;

a queue length detector for detecting a queue length indicating a count number of said packets in the buffer;

a memory having a length corresponding to a delay time of said timeslot assignment unit for storing a plurality of count numbers of assigned timeslots; and

a controller for forwarding packets from said buffer on timeslots assigned by said timeslot assignment unit, determining a total value of the count numbers stored in said memory, determining, from said total value and said queue length, a virtual queue length indicating a count number of packets in said buffer to which timeslots are still not assigned, and transmitting a signal to said timeslot assignment unit for indicating the virtual queue length,

said timeslot assignment unit receiving the virtual queue length indicating signal from each of said end-user systems and assigning timeslots to each end-user system based on the received virtual queue length.

14. A communication system as claimed in claim 13, wherein said virtual queue length equals a difference between said queue length and said total value.

15. A communication system as claimed in claim 13, wherein the timeslot assignment unit assigns said timeslots on a round-robin basis.

16. A communication system as claimed in claim 13, wherein the timeslot assignment unit assigns said timeslots in proportion to said virtual queue length.

17. A communication system as claimed in claim 13, wherein the timeslot assignment unit performs the functions of:

arranging the third count numbers of said end-user systems in descending order of rank, setting integer N to one;

detecting a difference between the third count number arranged in a rank represented by the integer N and the third count number arranged in a rank represented by integer (N + 1);

assigning timeslots corresponding in number to said difference to packets of N end-user systems whose third count numbers are arranged in said descending order; and

incrementing the integer N by one and repeating the functions of detecting said difference and assigning said timeslots.

18. A communication system as claimed in claim 13, wherein said timeslot assignment unit comprises:

a first controller for transmitting a signal to each of said end-user systems for indicating a count number of said assigned timeslots for storing the count number into the memory of each end-user system; and

a second controller for transmitting a position signal representing timeslot positions of the timeslots assigned by the first controller to each of said end-user systems.

19. A communication system as claimed in claim 13, wherein said packets are ATM cells.